

# BULLETIN

## OF THE INSTITUTE OF METALS

VOLUME 3

NOVEMBER 1956

PART 15

### INSTITUTE NEWS

#### Institute's New Headquarters

##### Fifth List of Donations

The Council gratefully acknowledges the following additional donations to the funds of the Institute, towards the costs of purchasing the lease of 17 Belgrave Square, London, S.W.1, as a new Headquarters of the Institute and of its equipment.

Further donations will be welcomed both from companies connected with the industry and from individual members.

|   | £   | s. | d. |
|---|-----|----|----|
| Metropolitan-Vickers Electrical Co., Ltd. . . . .     | 100 | 0  | 0  |
| Teed, Major P. Litherland (second donation) . . . . . | 75  | 0  | 0  |
| British Driver-Harris Co., Ltd. . . . .               | 52  | 10 | 0  |
| Pressed Steel Co., Ltd. . . . .                       | 52  | 10 | 0  |
| A.E.I. Research Laboratory . . . . .                  | 50  | 0  | 0  |
| Smith, Dr. A. E. W. . . . .                           | 10  | 0  | 0  |
| Sadler, Mr. A. V. . . . .                             | 5   | 5  | 0  |
| Willis, Mr. A. E. R. . . . .                          | 5   | 0  | 0  |
| Walters, Mr. B. . . . .                               | 3   | 3  | 0  |
| Drury, Mr. H. J. H. . . . .                           | 2   | 2  | 0  |
| Harding, Dr. A. R. . . . .                            | 2   | 0  | 0  |
| Savas, Mr. John (U.S.A.) . . . . .                    | 1   | 15 | 0  |
| Rankine, Mr. J. . . . .                               | 1   | 1  | 0  |

#### Election of Officers, 1957-58

The following have been elected to fill vacancies on the Council and will take office after the Annual General Meeting on 30 April 1957:

##### As President:

L. B. PFEIL, O.B.E., D.Sc., A.R.S.M., F.R.S., F.I.M., Director, The Mond Nickel Co., Ltd.; Director, Henry Wiggin and Co., Ltd.

##### As Vice-Presidents:

The Hon. JOHN GRIMSTON, M.P., Director and General Manager, Enfield Rolling Mills, Ltd., and Director, Enfield Copper Refining Co., Ltd.; Enfield Rolling Mills (Aluminium), Ltd.; Enfield Zinc Products, Ltd.

Marshal of the Royal Air Force the Right Hon. the Lord TEDDER, G.C.B., Hon. LL.D., Chancellor, University of Cambridge; Chairman, Standard Motor Co., Ltd.

##### As Ordinary Members of Council:

Professor J. W. CUTHBERTSON, D.Sc., F.I.M., Professor of Metallurgy, University of Nottingham.

Sir RONALD PRAIN, O.B.E., Chairman and President, Rhodesian Selection Trust, Ltd., and Roan Antelope Copper Mines, Ltd.

F. WAINE, Director, British Insulated Callender's Cables, Ltd.

#### Senior Vice-President, 1957-58

The Council of the Institute has elected Marshal of the Royal Air Force the Right Hon. the Lord TEDDER, G.C.B., LL.D., to serve as Senior Vice-President for 1957-58.

#### Award of the Heyn Memorial Medal to Professor G. V. Raynor

At a joint meeting of the Deutsche Gesellschaft für Metallkunde and the Institute of Metals, held in Stuttgart on 17 September, Professor G. V. RAYNOR, Feeney Professor of Physical Metallurgy in the University of Birmingham, received the Heyn Memorial Medal from Dr. Max Hansen, President of the Deutsche Gesellschaft.

He is the first English recipient of the Heyn Medal, which was established in 1929 and which is the highest award of the German Society. It is a warded in recognition of "outstanding achievements in the field of metallurgy by which essential progress in the scientific and technical development of the non-ferrous metals has been made". In the case of Professor Raynor, reference was made to his important research work in connection with the theory of alloy phases and alloy formation.

#### Abstracting Russian Literature

The Editor of *Metallurgical Abstracts* would be glad to hear of anyone willing to assist in the abstracting of Russian scientific and technical literature. Russian journals are now becoming more readily available in Britain, and if *Metallurgical Abstracts* is to fulfil its function it is important that these journals should be dealt with thoroughly and promptly. Members, or others, with the necessary linguistic and scientific knowledge are asked to write to The Editor, *Metallurgical Abstracts*, 17 Belgrave Square, London, S.W.1.

#### Annotated Equilibrium Diagrams

Four additions have recently been made to the Institute's series of Annotated Equilibrium Diagrams. They are:

No. 24. The Copper-Sulphur System.



## DIARY

- No. 25. The Chromium-Iron System.  
No. 26. The Iron-Manganese System.  
No. 27. The Iron-Vanadium System.

The first has been prepared by Dr. J. NUTTING and the other three by Dr. A. HELLAWELL.

The diagrams may be obtained from the Institute at the following prices (post free):

|                                   |                  |
|-----------------------------------|------------------|
| Members (one copy only) . . . . . | 1s. od. (\$0.40) |
| Non-members . . . . .             | 2s. od. (\$0.50) |
| Libraries . . . . .               | 1s. 8d. (\$0.40) |

### Programme of Meetings 1956-57: Erratum

Owing to an error in the printing of the Programme of Meetings for the Session 1956-57, it appears, on p. 2, that papers on "Corrosion-Fatigue" by T. D. Weaver and on "Stress-Corrosion" by K. R. Wilson will be given at the General Meeting to be held in London during November. In fact these papers are to be given at the meeting in Bristol on 6 December (see Diary, below).

## PERSONAL NOTES

DR. L. C. BANNISTER has been appointed a Director of the newly formed British Oxygen Research and Development, Ltd., which is to take over the Research and Development Centre of The British Oxygen Co., Ltd., at Morden, Surrey.

MR. K. T. BASSETT has left the Fairey Aviation Co., Ltd., and joined the staff of Henry Wiggin and Co., Ltd., Hereford.

MISS S. R. BILLINGTON has taken up an appointment with the G.E.C.-Simon-Carves Atomic Energy Group, Erith, Kent.

MR. R. BOLER has left Sheffield University, having obtained the B.Met. degree with Honours, and is now a Technical Assistant in the Metallurgical Department of Blackburn and General Aircraft, Ltd., Brough, E. Yorks.

MR. P. H. BOWKER has obtained the B.Sc. (Met.) degree of the University of Durham, and has taken up an appointment as metallurgist with the English Electric Co., Ltd., Preston, Lancs.

MR. B. G. FISK has taken a post as Mineral Dressing Engineer with Sukulu Mines, Ltd., Tororo, Uganda.

MR. L. KENWORTHY has left the Central Metallurgical Laboratory, Emsworth, and is now at the Admiralty Materials Laboratory, Holton Heath, near Poole, Dorset.

MR. P. KINGSLEY-JONES has been awarded the degree of B.Sc. (Wales) and has taken up a post with Vickers-Armstrongs (Aircraft), Ltd., Weybridge, Surrey.

PROFESSOR DR. W. KÖSTER, of Stuttgart, has been awarded the Luigi Losana Gold Medal by the Associazione Italiana di Metallurgia.

MR. N. PARKINSON has joined the Industrial Group of the U.K. Atomic Energy Authority.

MR. E. RAPPERPORT, of Nuclear Metals, Inc., Cambridge, Mass., has received the degree of Doctor of Science of the Massachusetts Institute of Technology.

## Death

The Editor regrets to announce the death of:

Professor Dr. GEORG MASING, at Göttingen, on 2 October 1956, after a long illness. He was the recipient of the Institute of Metals (Platinum) Medal in 1953.

## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### Birmingham Local Section

Will members in the Midlands please note that the meetings of the Birmingham Local Section arranged for 6 December 1956 and 17 January and 14 February 1957 will take place at the Professional Bodies Suite, The College of Technology, Gosta Green, Birmingham, and *not* at the Birmingham Exchange and Engineering Centre.

Will members please note also that Mr. H. W. G. Hignett will not now give his Chairman's Address at the Annual General Meeting on 14 March 1957.

## OTHER NEWS

### Powder Metallurgy Meeting, Düsseldorf

A meeting on powder metallurgy, to be held in Düsseldorf on 27 and 28 June 1957, is being arranged by a Joint Committee of the Verein Deutscher Eisenhüttenleute, Verein Deutscher Ingenieure, and Deutsche Gesellschaft für Metallkunde. Members of the Institute are warmly invited to attend.

### Powder Metallurgy Meeting, Eisenach

An International Powder Metallurgy Conference is being held on 28-31 May 1957 at Eisenach, Thuringia, in the Eastern Zone of Germany. Details may be obtained from Dr. Ing. Curt Agte, VEB Hartmetallwerk, Immelborn, Thuringia.

## DIARY

### The Institute

- 6 December.** "Corrosion-Fatigue", by T. D. Weaver, and "Stress-Corrosion", by K. R. Wilson. (Joint Meeting with the Chemical Society, the Royal Institute of Chemistry, and the Chemical Engineering and Corrosion Groups of the Society of Chemical Industry.) (Chemistry Department, The University, Woodland Road, Bristol, at 6.30 p.m.)

### Local Sections and Associated Societies

- 19 November. North-East Metallurgical Society.** "Analytical Control by the Quantometer", by W. S. Sykes. (Cleveland Scientific and Technical Institution, Middlesbrough, at 7.15 p.m.)
- 21 November. Manchester Metallurgical Society.** "The Role of Grain Boundaries in Creep", by Dr. D. McLean. (Manchester Room of the Central Library, Manchester, at 6.30 p.m.)



## APPOINTMENTS VACANT

- 22 November. Birmingham Local Section.** "Fatigue", by Dr. N. Thompson. (Birmingham Exchange and Engineering Centre, Stephenson Place, Birmingham, at 6.30 p.m.)
- 4 December. Oxford Local Section.** Films of scientific interest. (Cadena Café, Cornmarket Street, Oxford, at 7.0 p.m.)
- 5 December. Manchester Metallurgical Society.** "Boron in Steel", by F. B. Pickering. (Manchester Room of the Central Library, Manchester, at 6.30 p.m.)
- 6 December. Birmingham Local Section. Students' Evening.** (Professional Bodies Suite, The College of Technology, Gosta Green, Birmingham, at 6.30 p.m.)
- 6 December. Leeds Metallurgical Society.** "Gas-Shielded Welding of Non-Ferrous Metals", by P. T. Houldcroft. (Large Chemistry Lecture Theatre, The University, Leeds 2, at 7.15 p.m.)
- 6 December. London Local Section.** "The Founding of Magnesium", by Dr. E. F. Emley. (Joint meeting with the London Branch of the Institute of British Foundrymen.) (17 Belgrave Square, London, S.W.1, at 6.30 p.m.)
- 10 December. Scottish Local Section.** "Metal Quality Tests for Copper-Base Alloys", by A. R. French. (Institution of Engineers and Shipbuilders in Scotland, 39 Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)
- 11 December. North-East Metallurgical Society.** "Dislocations and the Strength of Metals", by Dr. A. H. Cottrell. (Cleveland Scientific and Technical Institution, Middlesbrough, at 7.15 p.m.)
- 11 December. South Wales Local Section.** "Recent Developments in Aluminium Alloys and Their Uses", by J. C. Bailey. (Department of Metallurgy, University College, Singleton Park, Swansea, at 6.45 p.m.)
- 13 December. Liverpool Metallurgical Society.** "Shell Moulding", by D. F. Bailey. (Liverpool Engineering Society, 9 The Temple, Dale Street, Liverpool, at 7.0 p.m.)
- 17 December. Birmingham Local Section.** Christmas Lecture for Schoolchildren, by E. A. G. Liddiard. (Large Lecture Theatre, Physics Department, The University, Edgbaston, Birmingham 15, at 2.30 p.m.)

### Other Societies

- 23 November. Royal Aeronautical Society, Graduates' and Students' Section.** "The Effect of Kinetic Heating on Aircraft Structures", by A.W. Kitchenside. (The Library, 4 Hamilton Place, London, W.1, at 7.30 p.m.)
- 4 December. Institute of British Foundrymen, Slough Section.** Open discussion on "Dimensional Accuracy of Castings". (Lecture Theatre, High Duty Alloys, Ltd., Slough, at 7.30 p.m.)
- 6 December. East Midlands Metallurgical Societies.** "Bells and Bell Founding", by P. L. Taylor. (Nottingham and District Technical College, at 7.30 p.m.)
- 6 December. Society of Instrument Technology, Tees-side Section.** "Suction Pyrometry", by T. Land. (Cleveland Scientific and Technical Institution, Middlesbrough, at 7.30 p.m.)
- 7 December. Chemical Society.** "New Aspects of the Sequestration of Metals", by Dr. R. L. Smith. (Joint Meeting with the Royal Institute of Chemistry and

Society of Chemical Industry.) (Chemistry Lecture Theatre, The University, Manchester, at 6.30 p.m.)

- 11 December. Royal Aeronautical Society.** "Materials for Aircraft Structures Subjected to Kinetic Heating", by Professor A. J. Murphy. (The Library, 4 Hamilton Place, London, W.1, at 7.0 p.m.)
- 12 December. Society of Chemical Industry, Corrosion Group.** "Corrosion in the Tropics", by H. R. Ambler. (14 Belgrave Square, London, S.W.1, at 6.30 p.m.)
- 12 December. Society of Instrument Technology, South Yorkshire Section.** "Instrumentation in Steel Rolling Mills", by R. B. Sims and P. Briggs. (Fuel Department Lecture Theatre, The University, Leeds 2, at 7.0 p.m.)

## APPOINTMENTS VACANT

**A GRADUATE METALLURGIST** is required to take charge of a section on problems associated with the machining and forming of ferrous and non-ferrous metals. Opportunities for research and varied investigational work. Permanent and progressive position with F.S.S.U. benefits. Salary commensurate with qualifications and experience. Full details to Box No. 417, The Institute of Metals, 17 Belgrave Square, London, S.W.1.

### CANTERBURY UNIVERSITY COLLEGE, CHRISTCHURCH, NEW ZEALAND

Applications are invited for the position of **LECTURER IN MECHANICAL ENGINEERING**. Applicants must possess a degree in Metallurgy or in Mechanical Engineering of a recognized University, and if the latter, should have several years' post-graduate experience in research or practical experience in Applied Metallurgy.

Salary will be at the rate of £985 p.a., rising by annual increments of £50 to £1235 p.a. An allowance is made towards travelling expenses, and the appointee will be required to commence duties as soon as can be conveniently arranged.

Further particulars and information as to the method of application may be obtained from the Secretary, Association of Universities of the British Commonwealth, 36 Gordon Square, London, W.C.1.

The closing date for the receipt of applications in New Zealand and London is 30 November 1956.

### ENGINEERING DEVELOPMENT OPPORTUNITY IN SOUTH-EASTERN B.C., CANADA

Excellent opportunity for a young metallurgist or engineering graduate with the Engineering Development Section of a leading metals and chemical fertilizers producer. Interesting work in the investigation of mechanical and material failures, application testing of metals and alloys, and non-destructive testing of all types can be expected.

Previous experience in development work is desirable. Training will be provided if necessary.

If this interests you, write giving full particulars of education, experience, and approximate starting salary expected to:

**PERSONNEL MANAGER,  
THE CONSOLIDATED MINING  
AND SMELTING COMPANY OF CANADA, LTD.,  
TRAIL, B.C., CANADA**

**HIGH DUTY ALLOYS, LTD.**, Slough, Buckinghamshire, require a Metallurgist to take charge of the Technical Processes in connection with a new Project. Candidates should have a degree or equivalent such as A.I.M., and preferably have experience with precision-casting or plaster-mould techniques for the casting of steel or high-temperature alloys. Salary will be commensurate with qualifications and experience, and there is a pension scheme in operation. Applications must be addressed to the Staff Manager, High Duty Alloys, Ltd., Slough, Bucks.



**NELSON RESEARCH LABORATORIES**

**ENGLISH ELECTRIC CO., LTD.,**

**STAFFORD**

**METALLURGY**

Applications are invited for appointments in the Metallurgical Department of the Nelson Research Laboratories. This is the Central Research Organization of the English Electric Group and is situated in new buildings in pleasant country surroundings two miles from Stafford.

A wide range of interesting posts is available at various levels in the following fields:

Metal Joining  
Powder Metallurgy  
Magnetic Materials  
Alloy Development  
Physical Metallurgy  
Specialized Examination Techniques.

Whilst the positions are, in general, suitable for Honours Graduates, in certain cases other qualifications will be considered.

Apply in writing to Dept. C.P.S., 336/7, Strand, W.C.2, quoting Ref. JM 914E.

**SENIOR SEMI-CONDUCTOR PHYSICIST**

The Nelson Research Laboratories, English Electric Co., Ltd., Stafford, invite applications from Physicists or Physical Metallurgists for a senior appointment in the Semi-Conductor Laboratory. The work is concerned with Research and Development in purification, single-crystal preparation, and evaluation of semi-conducting materials and their application to power devices.

Applicants should preferably have had several years' research experience and be familiar with recent developments in the semi-conductor field.

The post carries an attractive salary for a suitable man or woman. There is a Superannuation scheme, and facilities exist for assistance with housing.

Apply in writing to Dept. C.P.S., 336/7, Strand, W.C.2, quoting Ref. JM 913A.

**METALLURGICAL ASSISTANT** required for investigational and research work in connection with wrought copper and aluminium processes. A knowledge of ferrous metallurgy desirable but not essential. H.N.C. in Metallurgy, L.I.M., or Degree. Age 21-26 yrs. Laboratory or works experience essential. Pension scheme, five-day week, and all welfare facilities. Details to: Personnel Manager, The Telegraph Construction and Maintenance Co., Ltd., Telcon Works, Greenwich, S.E.10.

**METALLURGIST.** At our aluminium plant at Sunndalsøra, Norway, a B.Sc. in physical metallurgy is required for laboratory control of light-alloy production. Apply in writing with full particulars, stating education, previous employment, references, and salary required to A/S Ardal og Sunndal Verk, P.B. 180, Oslo, Norway.

**METALLURGIST** aged 22-25 years required to assist in the Metallurgical Laboratory of a company in North-East England manufacturing plant for the steel, gas, chemical, and petroleum industries. The work is of a varied nature and covers ferrous and non-ferrous weld

metallurgy, Mechanite castings, and special investigations. Applicants should possess a university degree or be Licentiates of the Institution of Metallurgists. Apply Box 418, The Institute of Metals, 17 Belgrave Square, London, S.W.1.

**METALLURGISTS.** There are vacancies for metallurgists of B.Sc., or L.I.M. standard in the Research Laboratory of the Fairey Aviation Co., Ltd. The work is interesting and includes static and fatigue investigations on new materials and research on heat-treatment. Applications should be made to the Personnel Manager, The Fairey Aviation Company, Ltd., Hayes, Middlesex.

**THE NEW SOUTH WALES UNIVERSITY OF TECHNOLOGY, AUSTRALIA**

VACANCY FOR PROFESSOR IN METALLURGY,  
NEWCASTLE UNIVERSITY COLLEGE

The University invites applications for the Foundation Chair in Metallurgy, Newcastle University College.

Salary: £A3052 per annum.

Applicants must have a degree in science, engineering, or metallurgy, with post-graduate research and experience and preferably some industrial experience. The successful applicant will be required to initiate and direct research, and to administer the teaching activities at Newcastle, within the Schools of Science and Metallurgy.

Well-equipped laboratories, whose facilities are expanding, are available at Newcastle.

Further particulars may be obtained from Professor Rupert Myers, Head of the School of Metallurgy, Kensington, Sydney, New South Wales. The appointee will be eligible, subject to medical examination, to contribute to the New South Wales Superannuation Fund, which will provide a pension of £A1500 per annum.

Professors are eligible for six months' study leave on full salary after three years of service or twelve months' after six years of service. Subject to the consent of University Council, a limited amount of higher consultative practice is permitted. The University reserves the right to fill the position by invitation. Shipping fares to Sydney of appointee and family will be paid.

Five copies of applications (including the names of two referees) should be lodged with the Agent General for New South Wales, 56/57, Strand, London, W.C.2, and one copy forwarded by air mail to the Bursar, New South Wales University of Technology, Post Office Box 1, Kensington, New South Wales, Australia, in an envelope marked "University Appointment", not later than **31 December 1956.**

**UNIVERSITY OF NOTTINGHAM**

DEPARTMENT OF METALLURGY

Applications are invited for a Senior Research Assistantship sponsored by the Central Electricity Authority, to work in the field of super-sonic testing of welds in austenitic steels. Candidates should have a good Honours degree in Metallurgy or Physics, with practical and/or research training. Salary scale £650 to £850, with superannuation and children's allowance. Form of application and conditions of appointment from the Registrar.

**UNIVERSITY OF NOTTINGHAM**

FACULTY OF APPLIED SCIENCE

Applications are invited for a Senior Research Assistant to work in the field of creep and fatigue of ferrous materials. Candidates should have a good Honours degree in Metallurgy or Physics, with practical experience and/or research training. Salary scale £650 to £1050, with superannuation and children's allowance. Form of application and conditions of appointment from the Registrar.

**UNIVERSITY OF OXFORD**

LECTURESHIP IN METALLURGY

The University proposes to appoint a Lecturer in Metallurgy from 1 April 1957, or as soon as possible thereafter, at a stipend according to age and qualifications which will rise by annual increments to a maximum of £1450. Membership of F.S.S.U. necessary. Allowance of £50 per annum for each dependent child. Applications (three copies) stating age, qualifications, and experience and giving names of two referees to the Reader in Metallurgy, Department of Metallurgy, University Museum, Parks Road, Oxford, from whom further particulars may be obtained, not later than 1 December 1956.